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Limosella Consulting Pty Ltd Reg no 2014/023293/07

05 February 2020

Louise Agenbach

Polygon Environmental Planning

Premier Plaza Block C

21 Peace Street

Dear Ms Agenbach,

Re: Surface Water Opinion Assessment for the proposed upgrade of the access bridges at Ga-Mampa, Fetakgomo Municipality, Limpopo Province

1. Introduction

Limosella Consulting was appointed to provide an opinion on the nature of surface water resources based on a desktop assessment of two sites earmarked for construction of access bridges.

No site assessment was undertaken although photos taken throughout the site as well as the terrestrial specialist assessment of the sites informed the desktop study. This document was updated on the 30th of April to take into account weir structures included in the proposed layout.

2. Mampa, Fetakgomo Municipality

The Mampa low water bridge to be upgraded is close to the Twickenham Platinum Mine in Limpopo which is an Anglo American Platinum operation. The Mampa access bridge crosses a stream and there is no access when the river is flooded. Previously constructed gabions have been washed away and undercutting of the current bridge surface has occurred.

The community relies on this access point to move between the villages. The area is known for severe erosion due to its poor soil conditions.

The proposed scope includes (Ilifa, 2020) (Figures 1 and 2):

- Construct a low-level access bridges which will allow the watercourse to flow underneath the structure.

- Erosion control measures immediately upstream and downstream of the crossing including weir structures.
- The vertical alignment of the road must be adjusted and road upgraded to a class 3 road.
- Provide drainage channels along the road to channel the storm water.
- Re-gravel the road leading towards the bridge on both sides.
- Provide pedestrian access on the bridge

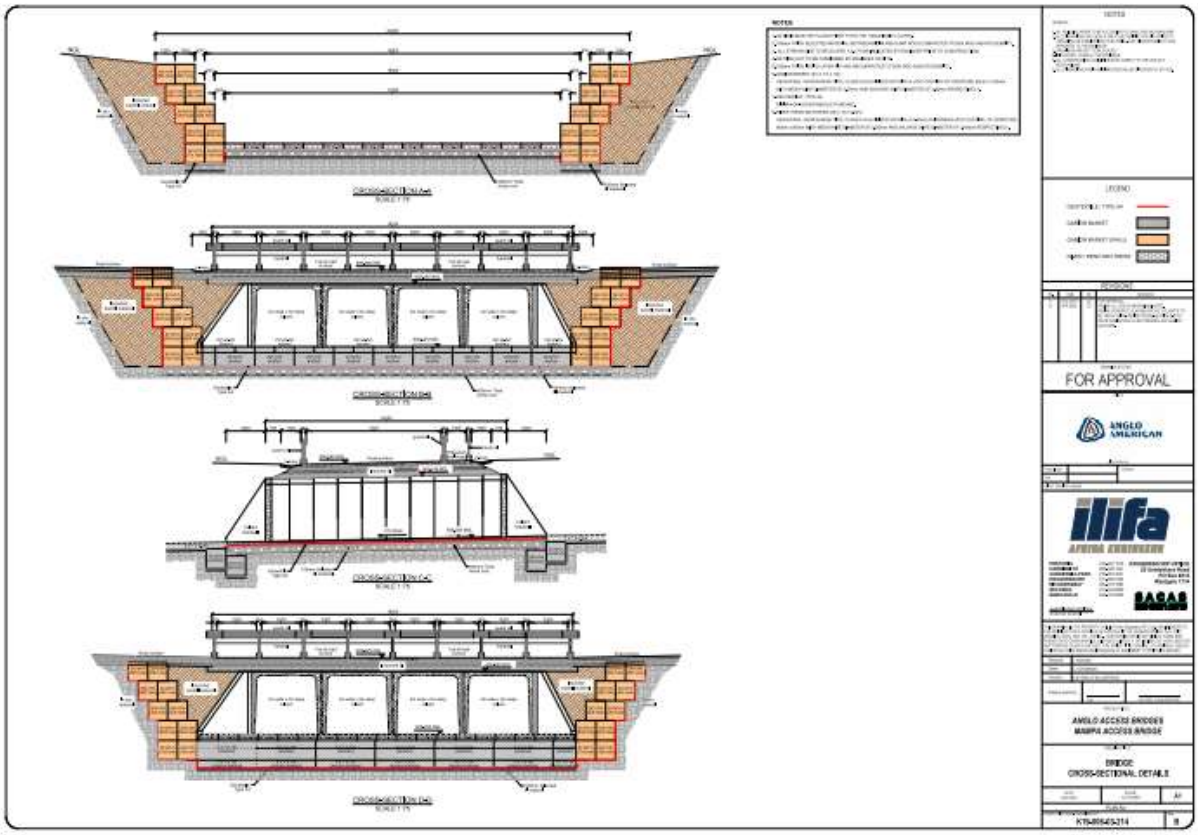

Figure 1: Proposed design of the upgraded Mampa low-water bridge (Ilifa, 2020)

Figure 2: Proposed layout of the upgraded Mampa low-water bridgeinlcuding weir structures upstream and downstream of the bridge (Ilifa, 2020)

The site is located southeast of Polokwane at a current low-water bridge at approximately 24°20'40.02"S and 30° 1'42.30"E. The R37 lies 200m to the northeast of the bridge (Figure 3). Ga-Mampa, Mangaka and Ga-Mohlala are residential areas within a 3km radius of the bridge.

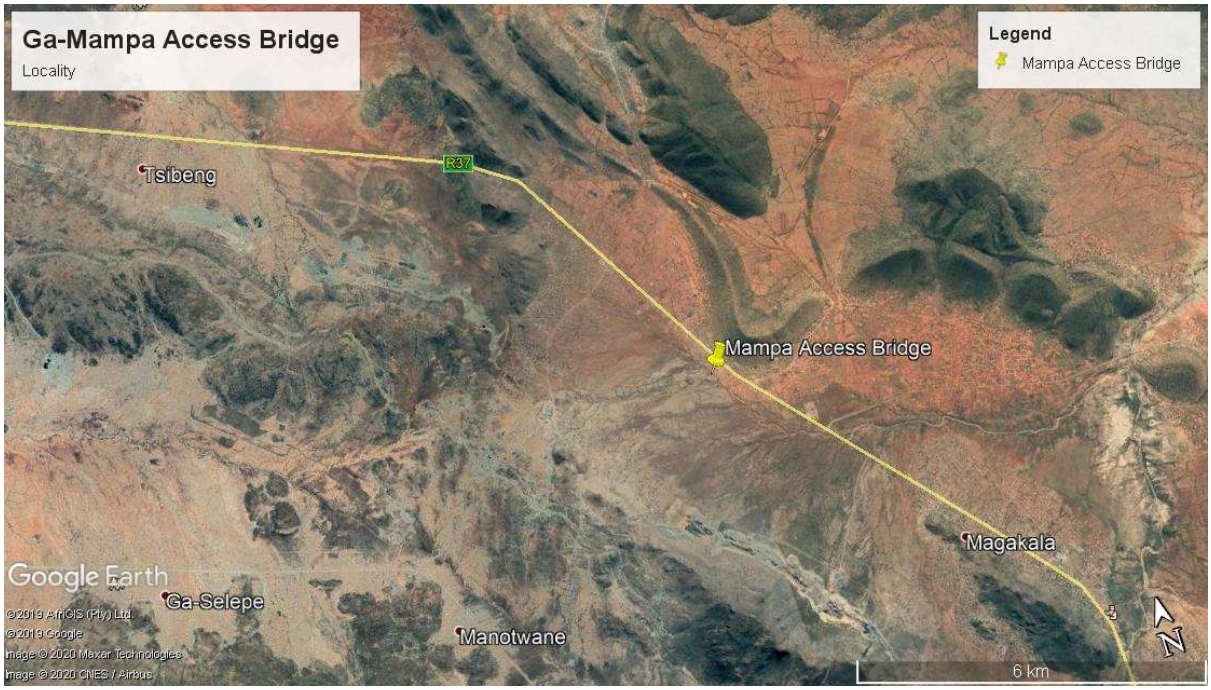

Figure 3: The location of the Mampa low-water bridge to be upgraded

3. Hydrological setting

The study site lies in Quarternary Catchment B71E, in Water Management Area 2, the Olifants. The bridge lies across a watercourse which drains into the Motse River, a tributary of the Olifants River (Figure 4). The Olifants River drains into the Limpopo River which drains into the Indian Ocean 140km north of Maputo, Mozambique.

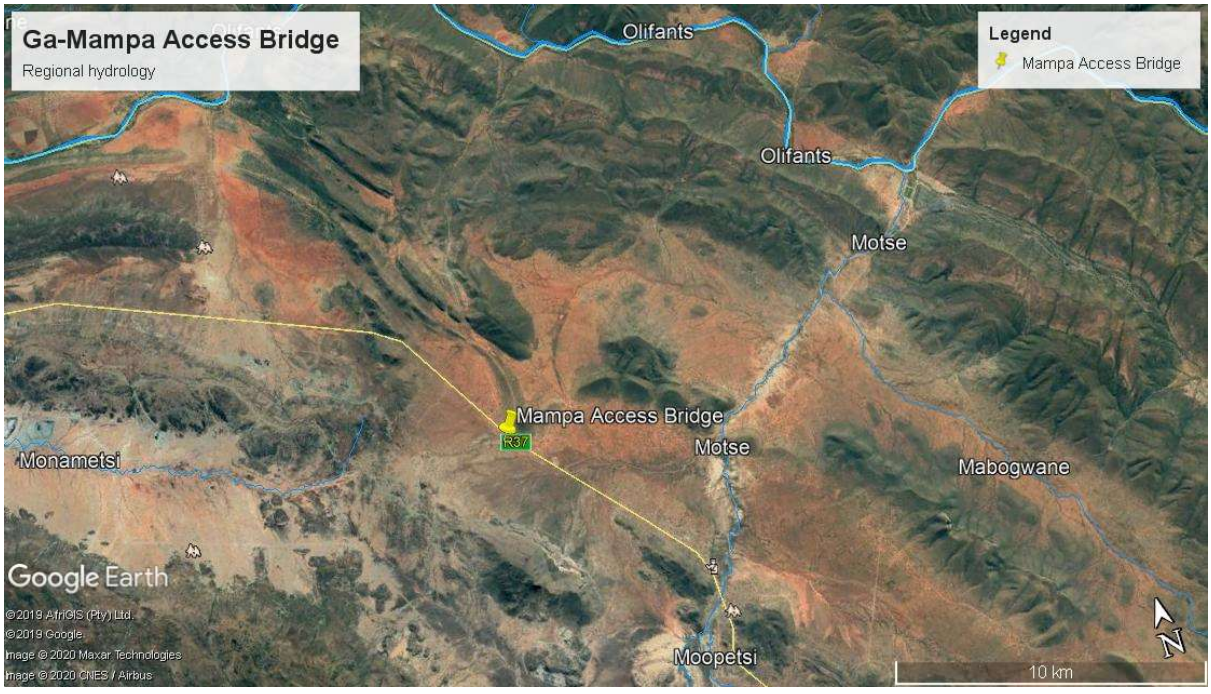

Figure 4: Regional hydrology showing the study site in relation to the Motse and Olifants Rivers

4. Results

The photographs taken on site show a non perennial stream associated with the low-water bridge (Figures 5 and 6). No clear riparian vegetation demarcates this second order stream. No moisture gradient on the site itself is evident from site photographs or aerial imagery (Figure 7).

Figure 5: The dry non perennial stream looking upstream from the crossing

Figure 6: Downstream from the crossing showing the dry stream bed and undercut slab of the current infrastructure

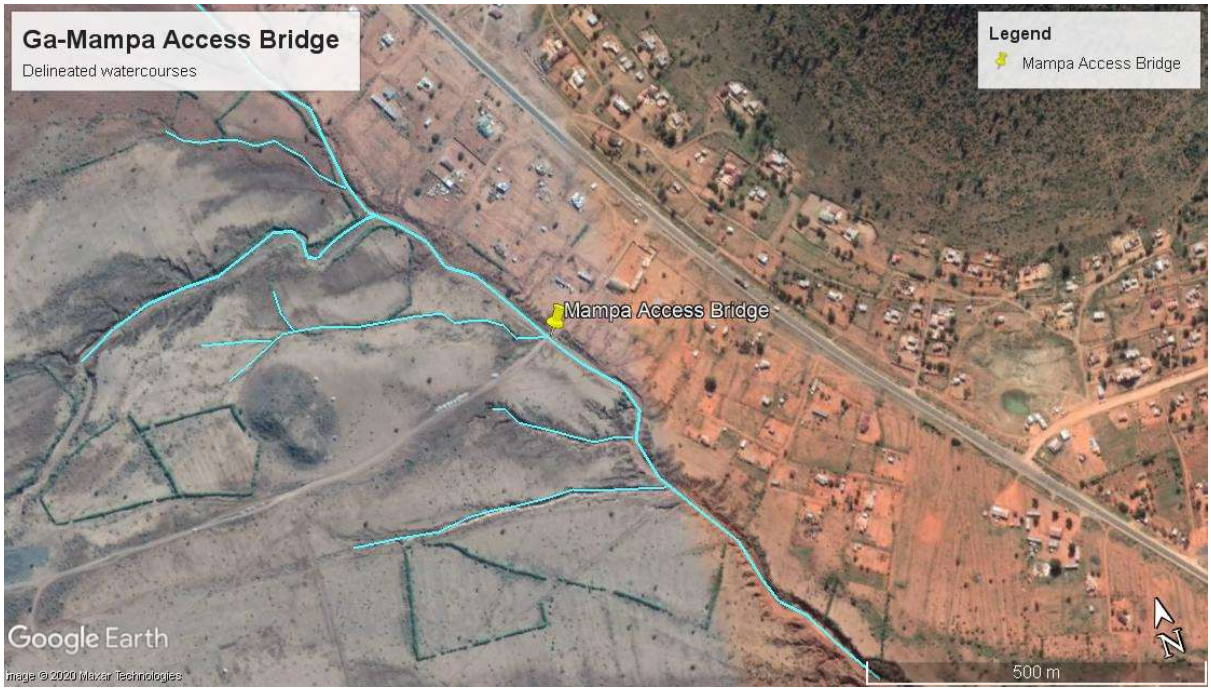

Figure 7: The delineated second order stream associated with the Mampa bridge crossing

5. Conclusion and recommendations

The Mampa bridge crossing is associated with a non-perennial stream with no specialised wetland or riparian habitat. This stream is likely to respond to rainfall events and not support permanent aquatic species. Potential impacts associated with upgrading the current low-water crossing are likely to include mobilisation of sediments and sedimentation of downstream areas. It is further important that adequate design of the bridge and weir structures ensure that no erosion or downstream canalisation or flooding results from the upgraded bridge.

Please do not hesitate to contact us should any further information be required.

Antoinette Bootsma

Ecologist/Botanist

SACNASP Reg. No. 400222-09

References

- Ilifa Africa Engineers (Pty) Ltd (2020). Mampa Access Bridge: Design Report